The Distribution of Industrial Occupations in England, 1841-61. by Clive Day
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beginning upon a very difficult problem. It was carefully laid out in advance, and the presentation is orderly and clear. Economics is to be congratulated upon the fact that the Institute of Economics has since put Dr. Engberg at work upon the companion problem of the effect of agricultural fluctuations upon industry. Work on this second problem will undoubtedly throw light upon many dim places in the field.

JOHN D. BLACK

The Distribution of Industrial Occupations in England, 1841–61, by Clive Day. Transactions of the Connecticut Academy of Arts and Sciences, Volume 28, pp. 79–235, March, 1927.

The purpose of this study is to determine the extent of the market for industrial products in the period under investigation. Assuming that the per capita consumption is uniform and that the consumer is supplied by the producer nearest at hand, we can determine the extent of the producer's market from the local distribution of consumers and producers. (Page 88.) If all razor makers are located in one county, we may conclude that the market for razors is national in scope. If shoemakers are distributed among all counties in exact proportion to population, the market is local.

In his study of industries with a national market, the author for the most part excludes London since its economic life was largely commercial rather than industrial. Some industries were, however, concentrated largely in London, and a special chapter is devoted to them. Exclusive of these metropolitan industries, the remainder are designated as national, provincial and local depending upon the extent of the market in each case.

The author calls an industry *national* if more than 50 per cent of the persons engaged in it were concentrated in districts comprising less than one-quarter of the total population. The industry is termed *metropolitan* if more than 50 per cent of the workers were concentrated in London, which at that time contained about 12 per cent of the total population. An industry is termed *local* if its workers are quite evenly distributed everywhere. The *provincial* industry occupies a point intermediate to the local and the national.

Three types of measures are used to indicate the degree of concentration or localization of an industry, as follows:

1. The diagramatic method. A base line is laid out representing the total population exclusive of London. At the extreme right of this base line, a space is laid off equal to the total population of the county with the greatest concentration of workers in the given occupation. A rectangle is then erected on this base, the vertical scale representing the number of workers in the given occupation per 10,000 population. Proceeding from right to left, a rectangle is then drawn for the remaining counties in the order of concentration of workers. The result is a picture of the localization of the industry.

2. The index of concentration. This index states the "percentage of the total population included in those counties (or districts) in which one-half of the workers are domiciled." Thus an index of 95 means that half of the workers in a

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given industry live in districts which include only 5 per cent of the total population. An index of 75 or more is requisite to class an industry as national.

3. Coefficients of deviation.

(a) Standard coefficient (the standard deviation divided by the mean). Industries are not regarded as national unless the standard coefficient is greater than unity. Most of the industries classed as provincial have a coefficient ranging from 0.5 to 1.0.

(b) Quartile coefficient (the difference of the first and third quartile divided by their sum).

Chief emphasis is placed upon the index of concentration and the standard coefficient. The author finds a high positive correlation between the results of these measures of distribution. Neither is able, however, to give any indication of the exact form of the distribution and in this regard the diagramatic method is superior. The index of concentration is, the author believes, on the whole the best measure. The standard coefficient he finds unreliable for the measurement of industries with extreme deviations, particularly when the industry is highly localized in a small district which is accordingly given disproportionate weight.

The author raises the question why Pearson's coefficient of correlation cannot be used in a problem of this character. Would not a correlation of the two variables, (a) number in trade and (b) total population in each county, measure the localization of the industry? The answer is in the negative since in reality only one of the series is a true variable. Thus if the counties were adjusted so that all the districts had equal populations the only variable that would remain would be the number in the trade. The problem is essentially that of determining the deviation of a single series and not one of correlation.

Of the industries with a national distribution the textiles dominated. Three-fourths of the workers in national industries were employed in this field. Second in importance came the metal industries. Textiles and metals included seven-eighths of the total population engaged in national industries. Among the other national industries were pottery, glass, hats, and gloves. Of industries localized in London, printing, publishing and book making was the most important. Some of the metropolitan industries required highly skilled labor such as the making of scientific and surgical instruments. Others flourished on cheap labor such as the artificial flowers industry, embroidery and trimming. Some of the industries appealed largely to the rich, such as the execution of crests and coats of arms. Provincial and local industries included masons, carpenters, blacksmiths, wheelwrights, butchers, millers, shoemakers, tailors and dressmakers.

Professor Day's study is of interest to the economic historian, but, in the opinion of the reviewer, its chief interest lies in the method which it develops in the measurement of the extent of the market and the localization of industries. This is a fascinating field for research and one that needs much cultivation. Professor Day has made a worth-while contribution which merits careful consideration and which should stimulate other studies of a similar character.

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